

What is claimed is:

1. A semiconductor device, comprising:

an upper substrate on which a plurality of through holes are formed;

5 a lower substrate; and

a plurality of semiconductor substrates provided between said upper substrate and said lower substrate, said plurality of semiconductor substrates forming a fixed electrode and a variable electrode, and each having a potential drawing portion, abutting on said through holes to draw potentials,

10 wherein one of said plurality of semiconductor substrates is so formed as to surround a periphery of a region between said upper substrate and said lower substrate, like an outer peripheral frame,

the others of said plurality of semiconductor substrates are disposed, being surrounded by an inner periphery of said outer peripheral frame formed by said one semiconductor substrate, and

15 said potential drawing portion of said one semiconductor substrate is formed at a corner portion thereof and an area of said corner portion of said one semiconductor substrate including said potential drawing portion is almost equal to or less than an area of each of said potential drawing portions of said other semiconductor substrates.

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2. The semiconductor device according to claim 1, further comprising

a plurality of bonding pad portions formed on a surface of said upper substrate to draw to bonding wires potentials drawn from said potential drawing portions of said semiconductor substrates to said upper substrate through said through holes.

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3. The semiconductor device according to claim 1, wherein
said potential drawing portions are disposed on an end portion.

4. The semiconductor device according to claim 1, wherein
5 a conductive layer is formed on a surface of said upper substrate, being fixed to a
predetermined fixed voltage to shield said semiconductor substrates against disturbance
such as proximity of other substances, static electricity or radio wave hindrance.

5. The semiconductor device according to claim 1, wherein
10 said one semiconductor substrate is fixed to a predetermined fixed potential.

6. The semiconductor device according to claim 4, wherein
said one semiconductor substrate is fixed to a predetermined fixed potential, and
said conductive layer is connected to said one semiconductor substrate to be
15 fixed to said fixed potential.

7. The semiconductor device according to claim 1, wherein
a back surface of said lower substrate is die-bonded onto a conductive die pad
with a predetermined conductive member interposed therebetween.
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8. The semiconductor device according to claim 1, wherein
a signal processing semiconductor element is mounted on a surface of said upper
substrate, and
a substrate of said semiconductor element joined onto said surface of said upper
25 substrate is fixed to a predetermined fixed potential.

9. The semiconductor device according to claim 2, further comprising:

interconnection layers wired on said surface of said upper substrate to interconnect said through holes and said bonding pad portions, respectively;

an insulating film covering said surface of said upper substrate on which said
5 interconnection layers are wired; and

a conductive layer formed in an upper side of said insulating film, being fixed to a predetermined fixed potential to shield said semiconductor substrates and said interconnection layers against disturbance such as proximity of other substances, static electricity or radio wave hindrance.